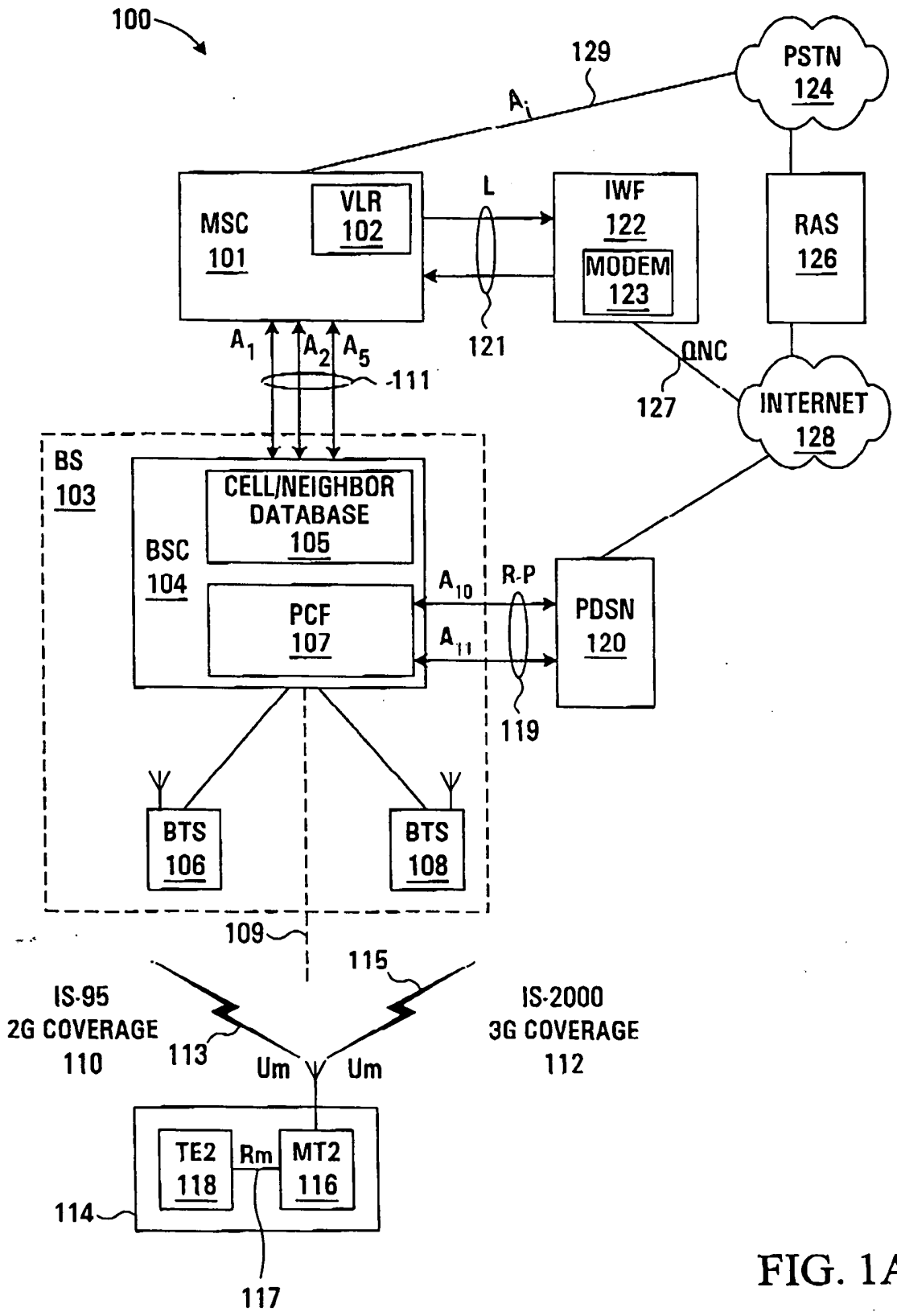

100
129
PSTN
124
A_i
MSC
101
VLR
102
L
IWF
122
MODEM
123
RAS
126
A_1
A_2
A_5
111
121
QNC
127
INTERNET
128
BS
103
CELL/NEIGHBOR
DATABASE
105
BSC
104
PCF
107
A_{10}
A_{11}
R-P
PDSN
120
119
BTS
106
BTS
108
109
115
IS-95
2G COVERAGE
110
113
Um
Um
IS-2000
3G COVERAGE
112
TE2
118
Rm
MT2
116
114
117

FIG. 1A

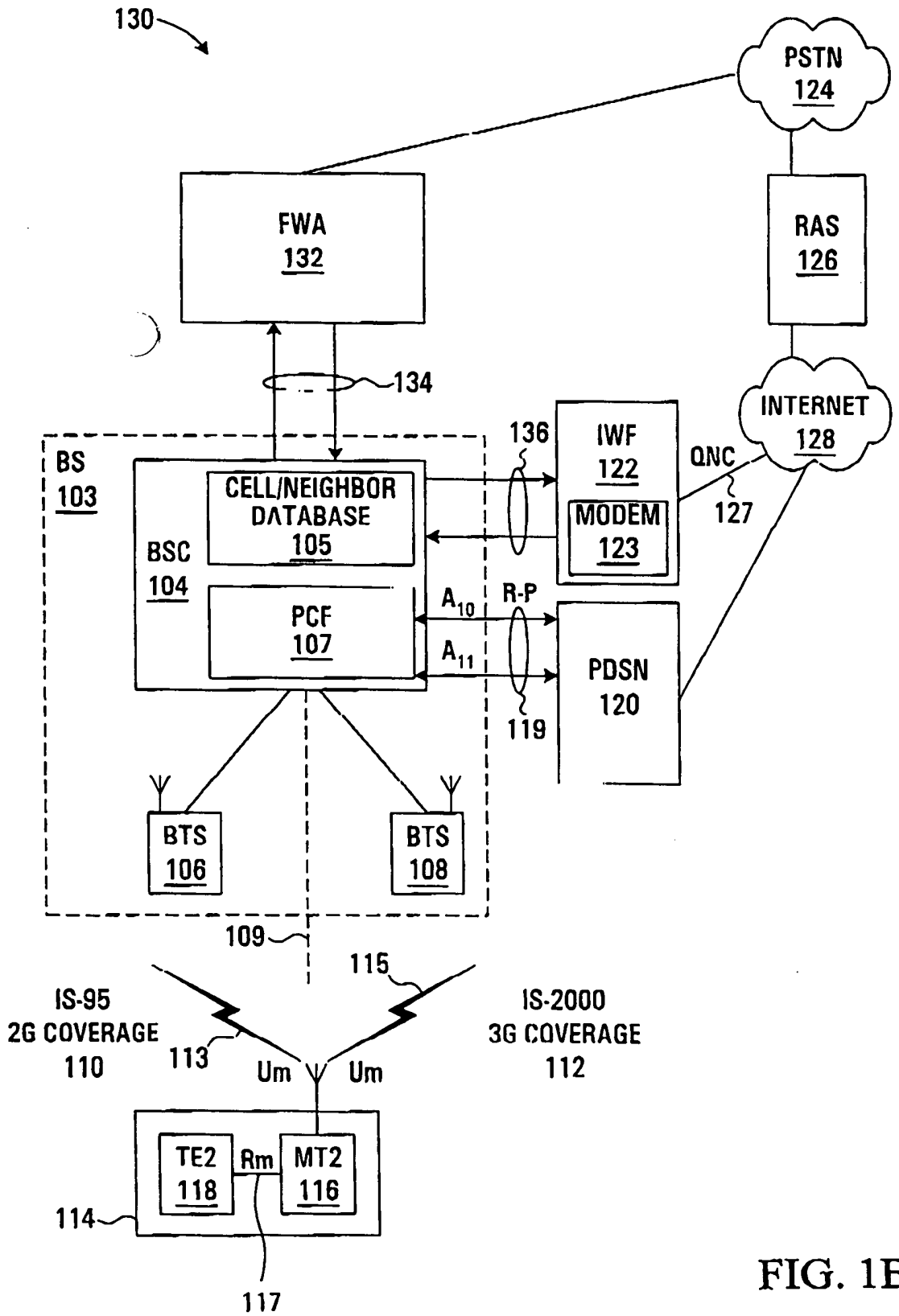

130
PSTN
124
FWA
132
RAS
126
134
INTERNET
128
136
IWF
122
QNC
127
BS
103
CELL/NEIGHBOR
DATABASE
105
MODEM
123
BSC
104
PCF
107
A10
A11
R-P
PDSN
120
119
BTS
106
BTS
108
109
115
IS-95
2G COVERAGE
110
113
Um
Um
IS-2000
3G COVERAGE
112
TE2
118
Rm
MT2
116
114
117

FIG. 1B

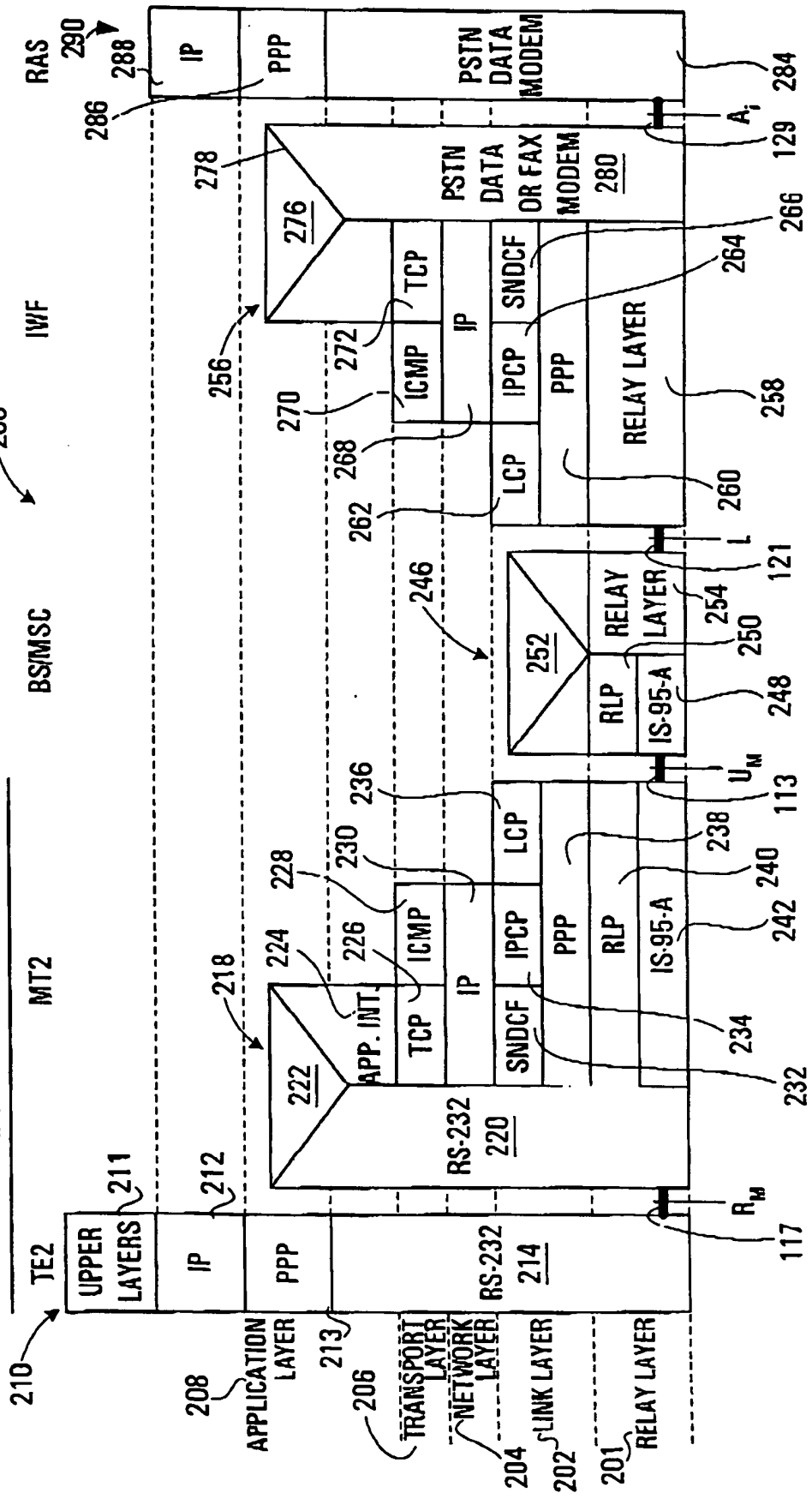

MOBILE STATION
MT2
TE2
UPPER LAYERS
211
IP
212
PPP
213
RS-232
214
R_M
117
210
APPLICATION LAYER
208
TRANSPORT LAYER
206
NETWORK LAYER
204
LINK LAYER
202
RELAY LAYER
201
200
IWF
BS/MSC
222
APP. INT.
218
TCP
224
ICMP
226
IP
228
SNDCF
232
IPCP
230
LCP
236
RS-232
220
PPP
234
RLP
238
IS-95-A
240
242
U_M
113
252
246
RLP
248
IS-95-A
RELAY LAYER
250
254
L
121
A_i
129
276
278
PSTN DATA OR FAX MODEM
280
TCP
272
ICMP
270
IP
268
SNDCF
266
IPCP
264
LCP
262
PPP
RELAY LAYER
260
258
256
RAS
290
IP
288
286
PPP
PSTN DATA MODEM
284

FIG. 2

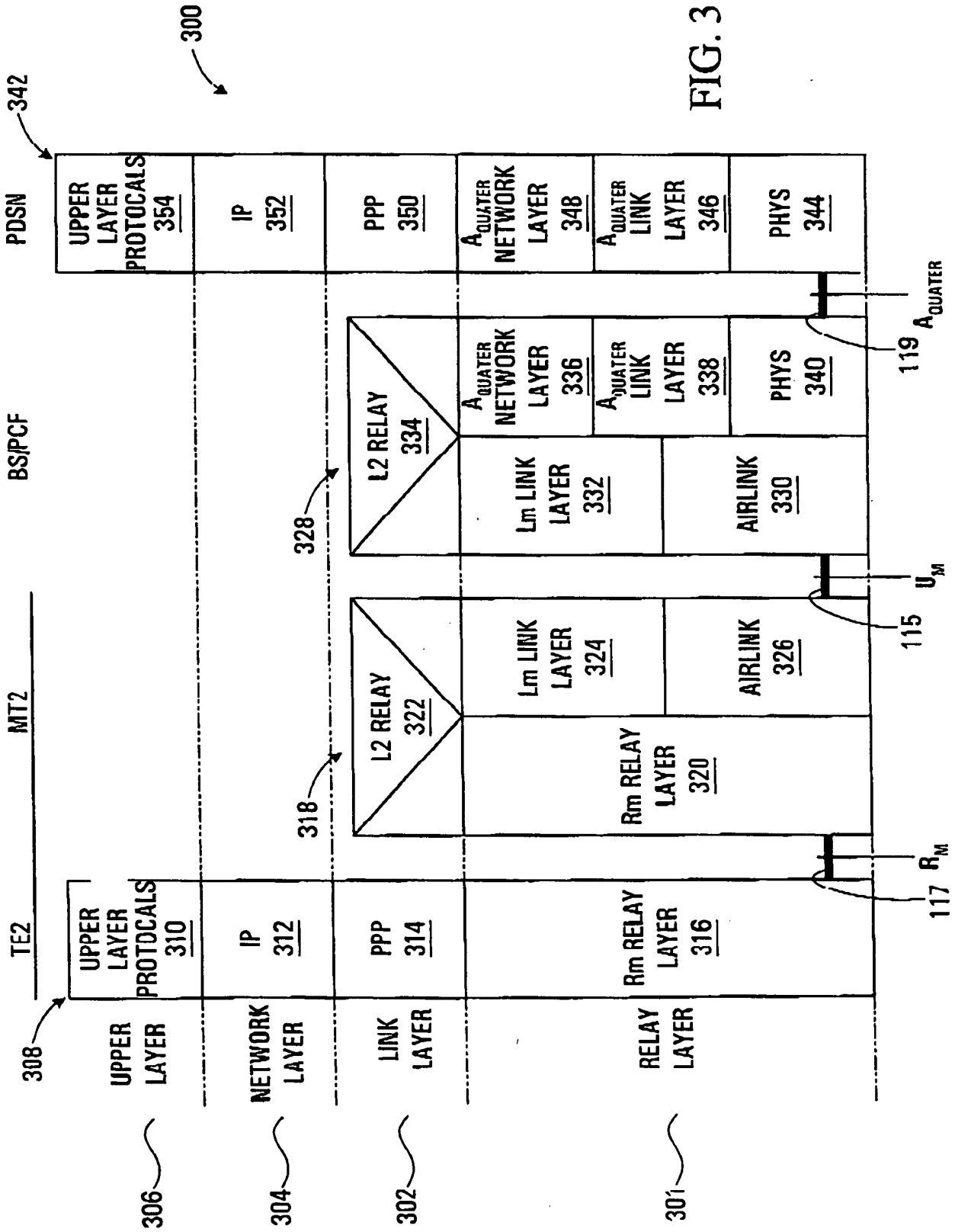
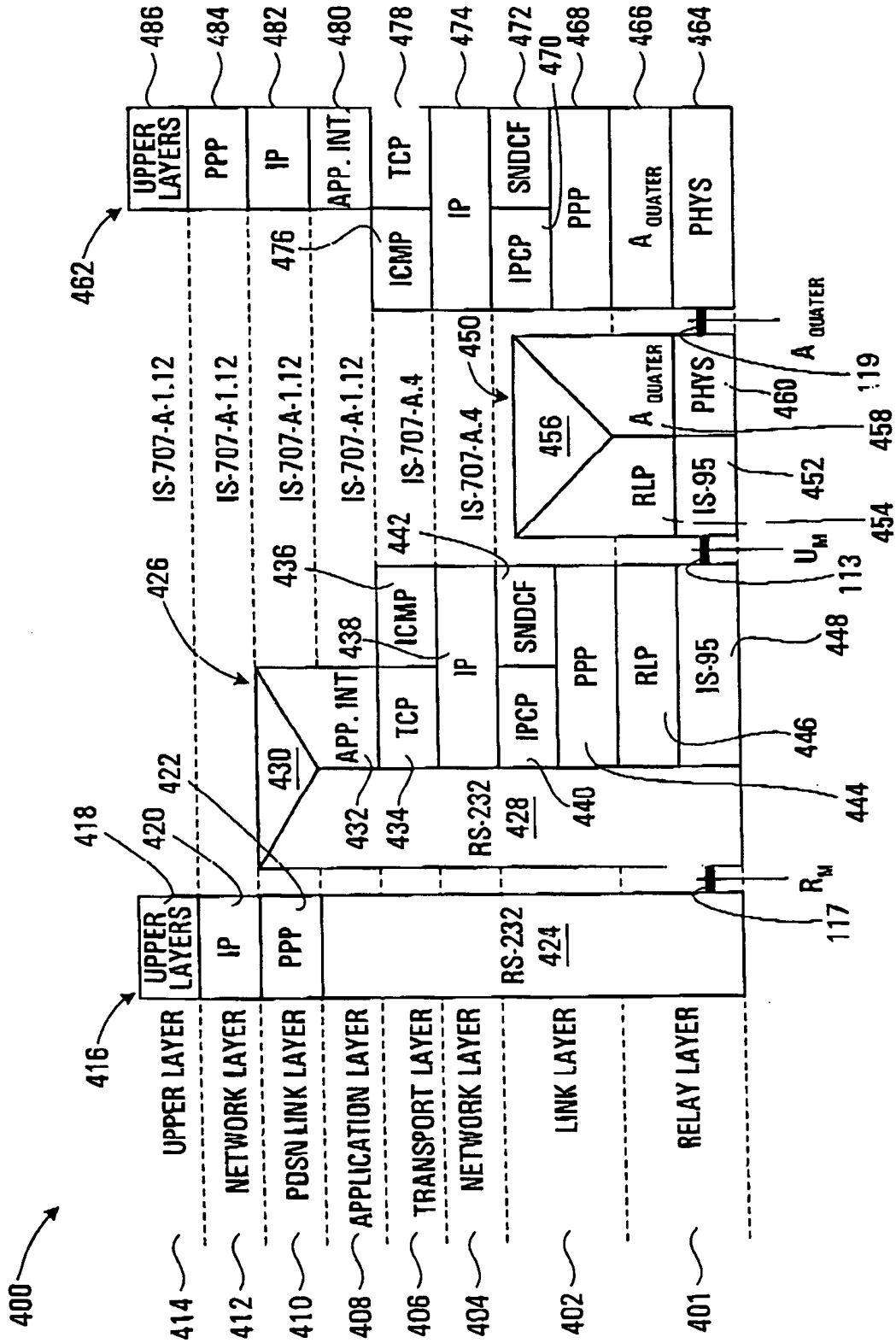

300
342
PDSN
BS/PCF
MT2
TE2
UPPER LAYER PROTOCALS 354
IP 352
PPP 350
A QUATER NETWORK LAYER 348
A QUATER LINK LAYER 346
PHYS 344
L2 RELAY 334
A QUATER NETWORK LAYER 336
A QUATER LINK LAYER 338
PHYS 340
Lm LINK LAYER 332
AIRLINK 330
L2 RELAY 322
Lm LINK LAYER 324
AIRLINK 326
Rm RELAY LAYER 320
UPPER LAYER PROTOCALS 310
IP 312
PPP 314
Rm RELAY LAYER 316
328
318
308
119 A QUATER
115 U M
117 R M
UPPER LAYER
NETWORK LAYER
LINK LAYER
RELAY LAYER
306
304
302
301

FIG. 3


TE2
MT2
BS/PCF
PDSN
UPPER LAYER
NETWORK LAYER
PDSN LINK LAYER
APPLICATION LAYER
TRANSPORT LAYER
NETWORK LAYER
LINK LAYER
RELAY LAYER
UPPER LAYERS
IP
PPP
RS-232
APP. INT
TCP
ICMP
SNDCF
IPCP
RLP
IS-95
PHYS
A QUATER
IS-707-A-1.12
IS-707-A.4
400
401
402
404
406
408
410
412
414
416
418
420
422
424
426
428
430
432
434
436
438
440
442
444
446
448
450
452
454
456
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460
462
464
466
468
470
472
474
476
478
480
482
484
486
117
119
113

FIG. 4

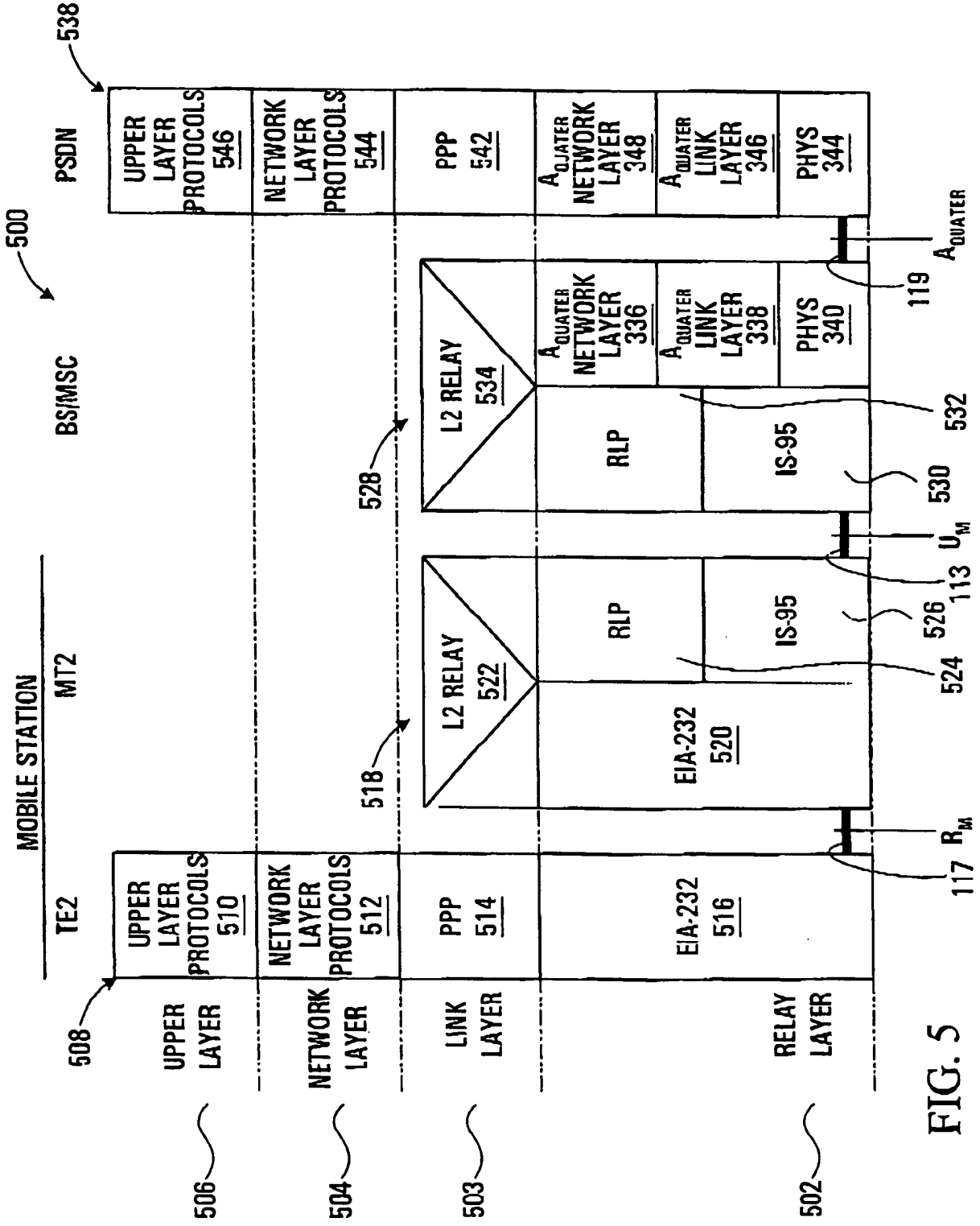
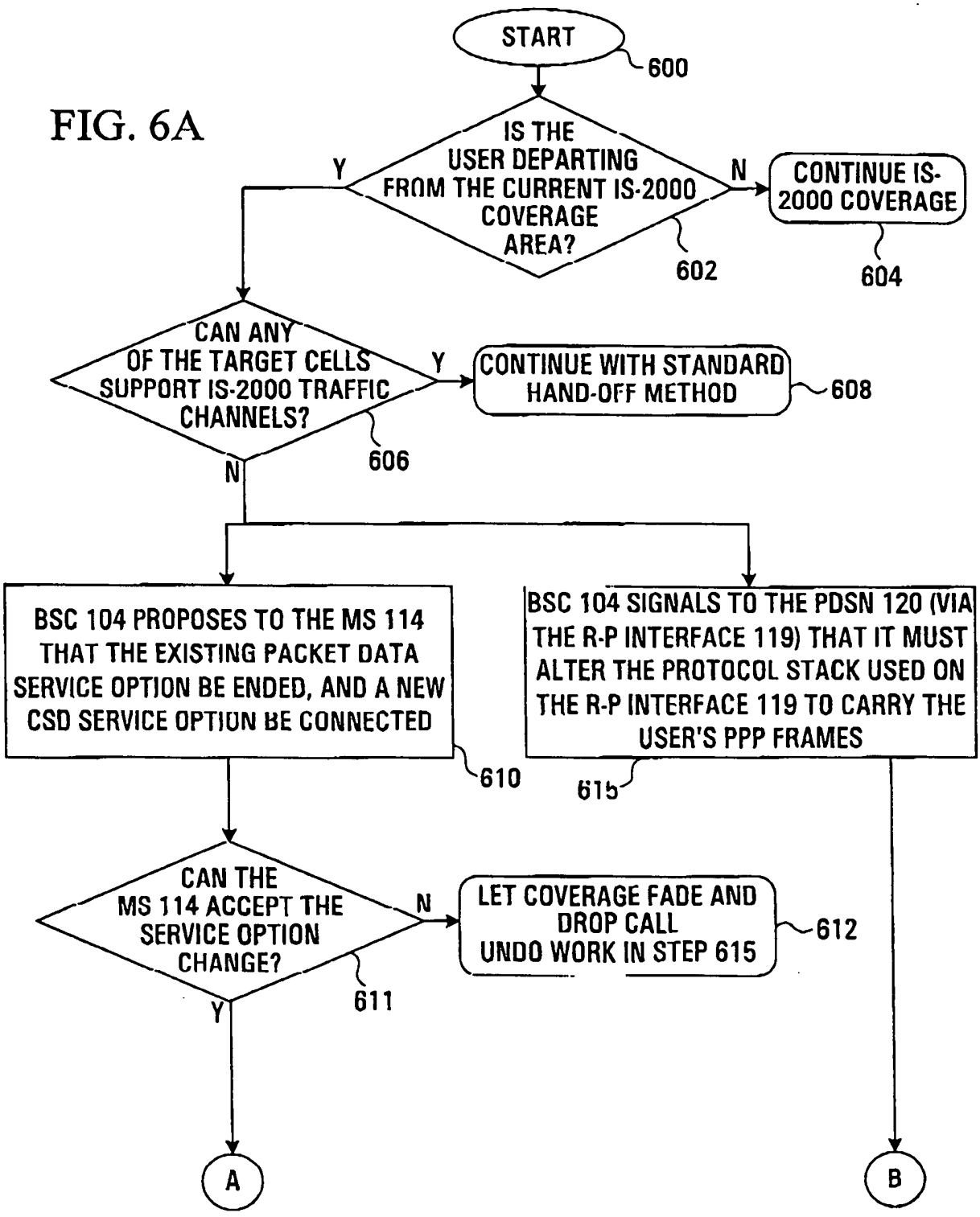

MOBILE STATION
TE2
MT2
BS/MSC
PSDN
500
538
UPPER LAYER PROTOCOLS 546
NETWORK LAYER PROTOCOLS 544
PPP 542
A QUATER NETWORK LAYER 348
A QUATER LINK LAYER 346
PHYS 344
A QUATER
119
L2 RELAY 534
A QUATER NETWORK LAYER 336
A QUATER LINK LAYER 338
PHYS 340
RLP
IS-95
532
530
528
U_M
113
526
524
L2 RELAY 522
RLP
IS-95
EIA-232 520
518
R_M
117
UPPER LAYER PROTOCOLS 510
NETWORK LAYER PROTOCOLS 512
PPP 514
EIA-232 516
508
UPPER LAYER
NETWORK LAYER
LINK LAYER
RELAY LAYER
506
504
503
502

FIG. 5

FIG. 6A


START
600
IS THE USER DEPARTING FROM THE CURRENT IS-2000 COVERAGE AREA?
602
Y
N
CONTINUE IS-2000 COVERAGE
604
CAN ANY OF THE TARGET CELLS SUPPORT IS-2000 TRAFFIC CHANNELS?
606
Y
CONTINUE WITH STANDARD HAND-OFF METHOD
608
N
BSC 104 PROPOSES TO THE MS 114 THAT THE EXISTING PACKET DATA SERVICE OPTION BE ENDED, AND A NEW CSD SERVICE OPTION BE CONNECTED
610
BSC 104 SIGNALS TO THE PDSN 120 (VIA THE R-P INTERFACE 119) THAT IT MUST ALTER THE PROTOCOL STACK USED ON THE R-P INTERFACE 119 TO CARRY THE USER'S PPP FRAMES
615
CAN THE MS 114 ACCEPT THE SERVICE OPTION CHANGE?
611
N
LET COVERAGE FADE AND DROP CALL UNDO WORK IN STEP 615
612
Y
A
B

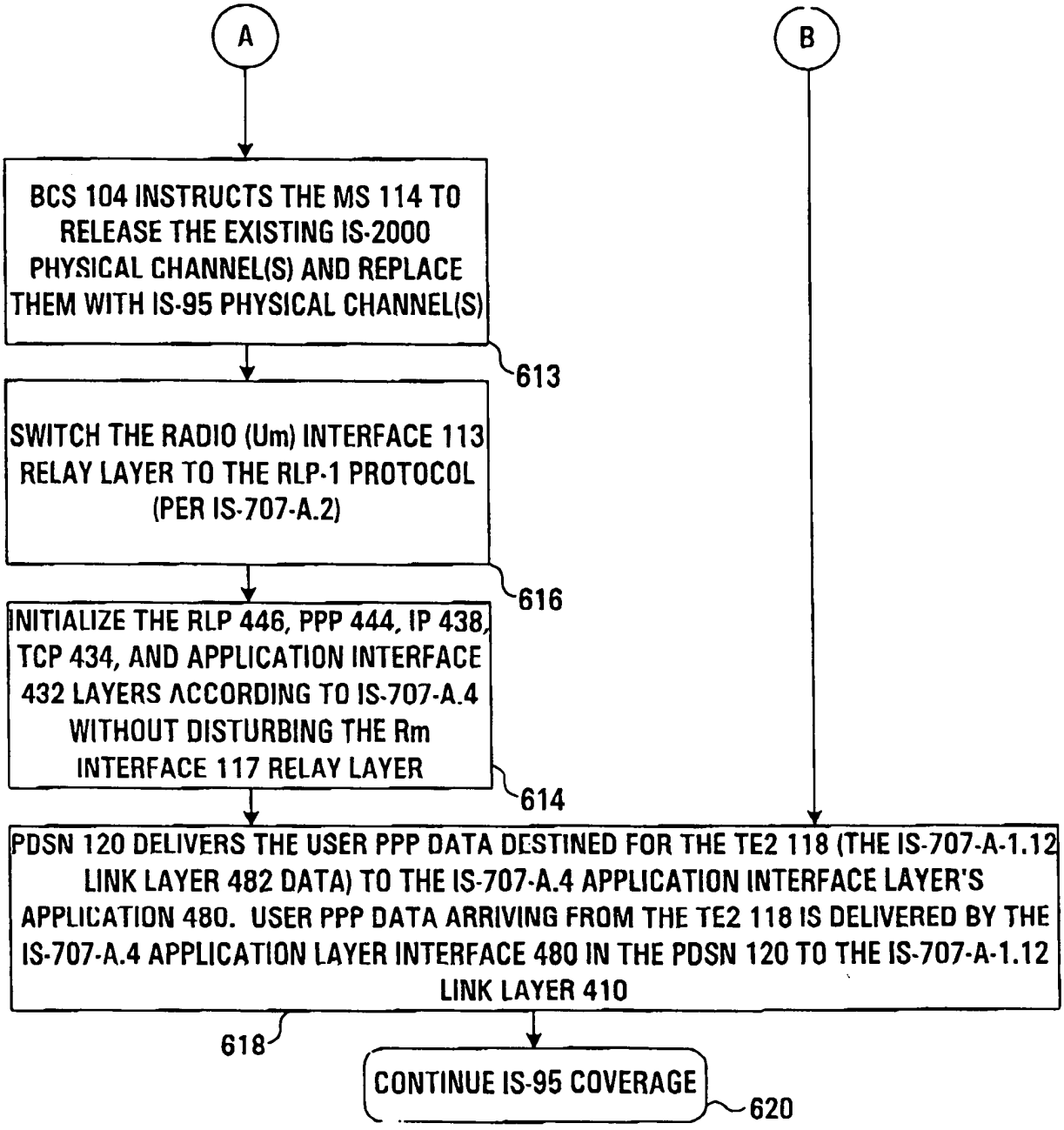
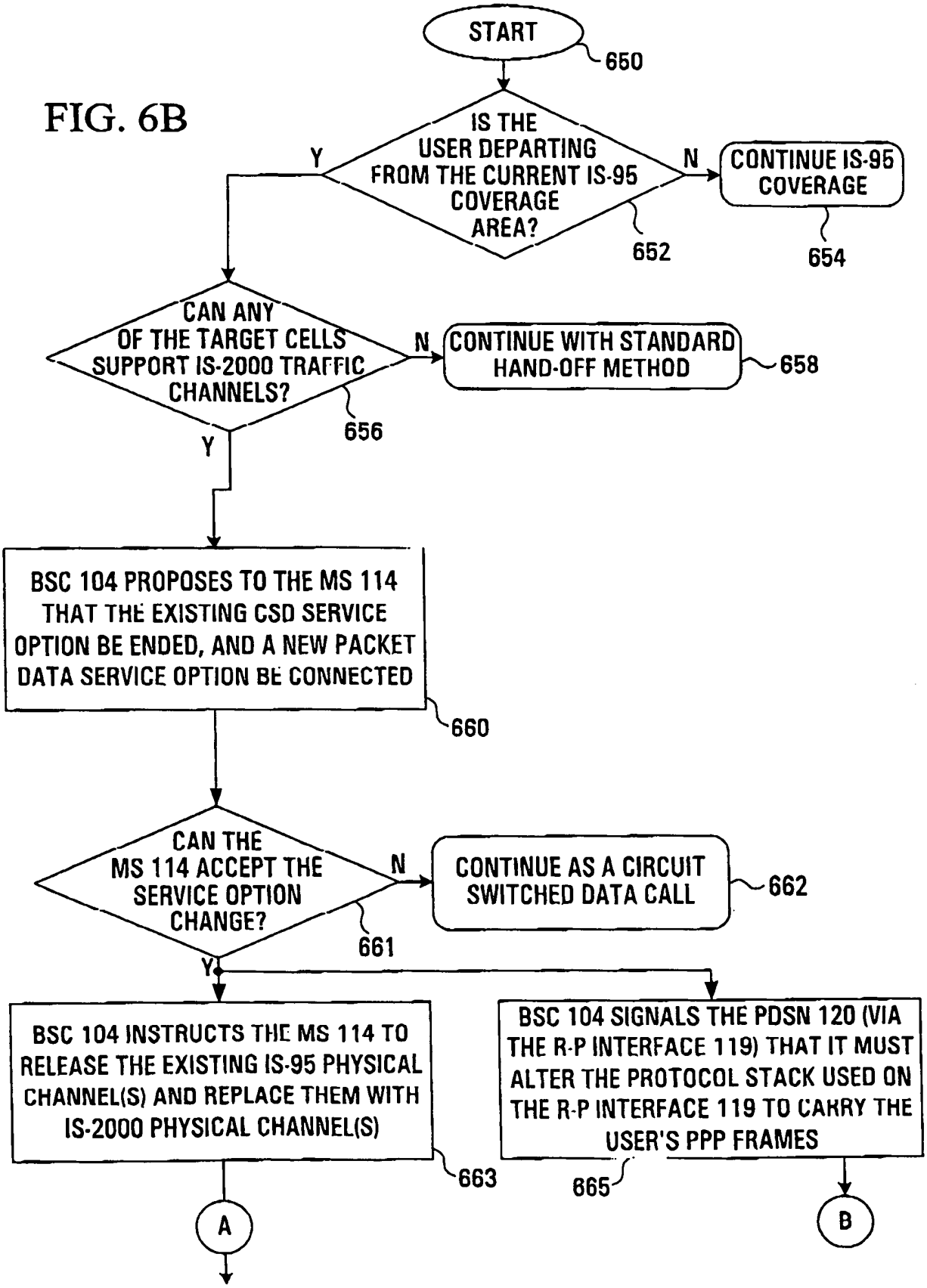


FIG. 6A
CONTINUED

FIG. 6B


START
650
IS THE USER DEPARTING FROM THE CURRENT IS-95 COVERAGE AREA?
652
Y
N
CONTINUE IS-95 COVERAGE
654
CAN ANY OF THE TARGET CELLS SUPPORT IS-2000 TRAFFIC CHANNELS?
656
N
CONTINUE WITH STANDARD HAND-OFF METHOD
658
Y
BSC 104 PROPOSES TO THE MS 114 THAT THE EXISTING CSD SERVICE OPTION BE ENDED, AND A NEW PACKET DATA SERVICE OPTION BE CONNECTED
660
CAN THE MS 114 ACCEPT THE SERVICE OPTION CHANGE?
661
N
CONTINUE AS A CIRCUIT SWITCHED DATA CALL
662
Y
BSC 104 INSTRUCTS THE MS 114 TO RELEASE THE EXISTING IS-95 PHYSICAL CHANNEL(S) AND REPLACE THEM WITH IS-2000 PHYSICAL CHANNEL(S)
663
BSC 104 SIGNALS THE PDSN 120 (VIA THE R-P INTERFACE 119) THAT IT MUST ALTER THE PROTOCOL STACK USED ON THE R-P INTERFACE 119 TO CARRY THE USER'S PPP FRAMES
665
A
B

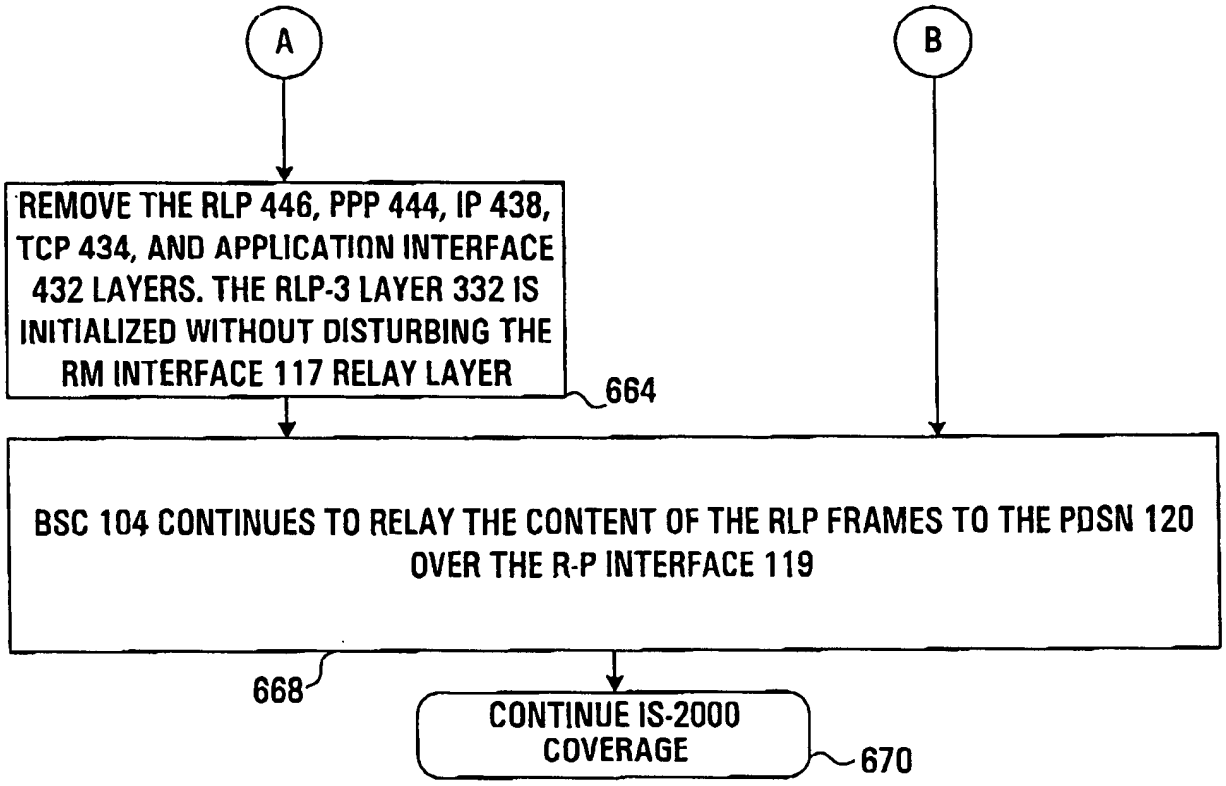
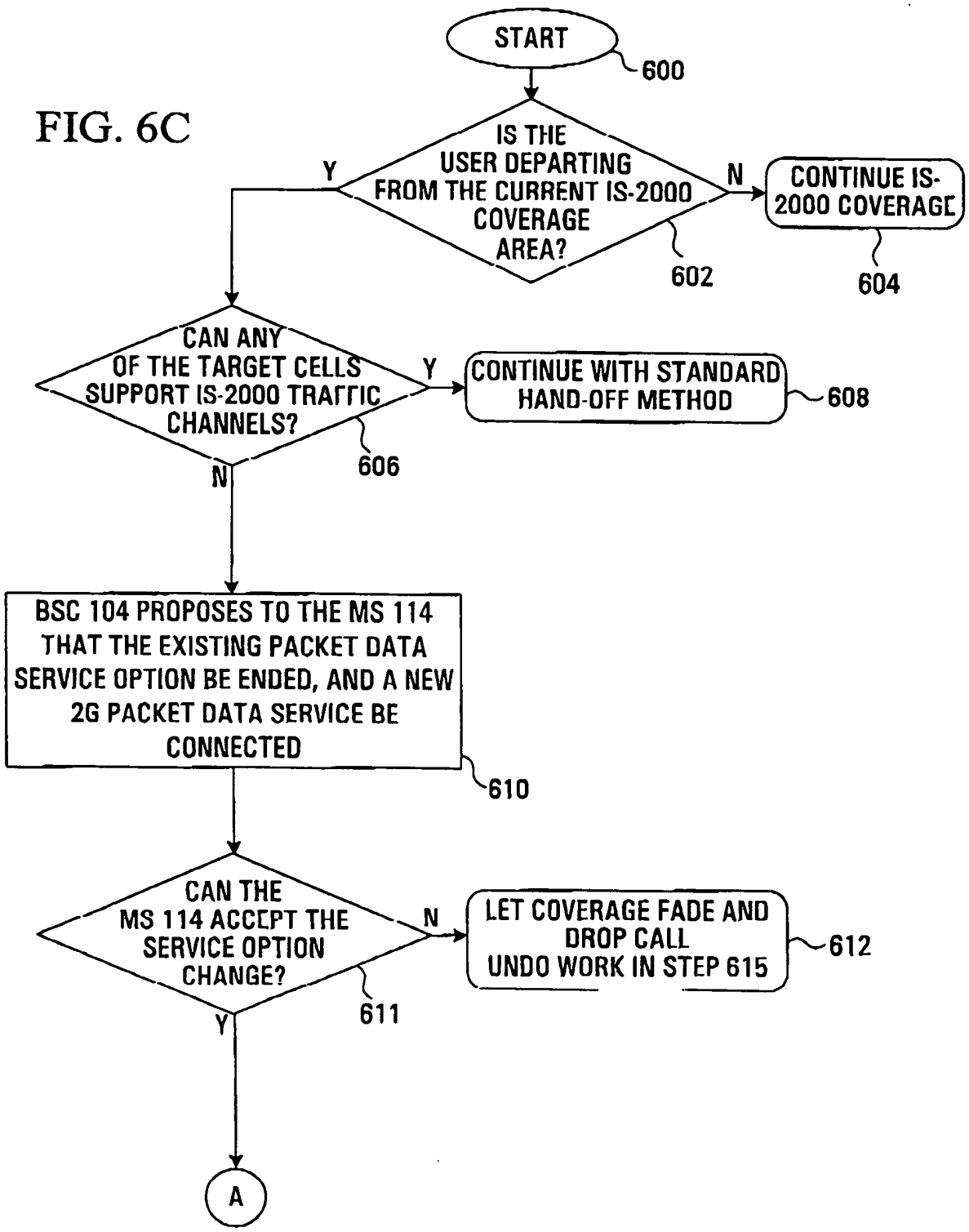


FIG. 6B
CONTINUED

FIG. 6C


START
600
IS THE USER DEPARTING FROM THE CURRENT IS-2000 COVERAGE AREA?
602
Y
N
CONTINUE IS-2000 COVERAGE
604
CAN ANY OF THE TARGET CELLS SUPPORT IS-2000 TRAFFIC CHANNELS?
606
Y
CONTINUE WITH STANDARD HAND-OFF METHOD
608
N
BSC 104 PROPOSES TO THE MS 114 THAT THE EXISTING PACKET DATA SERVICE OPTION BE ENDED, AND A NEW 2G PACKET DATA SERVICE BE CONNECTED
610
CAN THE MS 114 ACCEPT THE SERVICE OPTION CHANGE?
611
N
LET COVERAGE FADE AND DROP CALL UNDO WORK IN STEP 615
612
Y
A

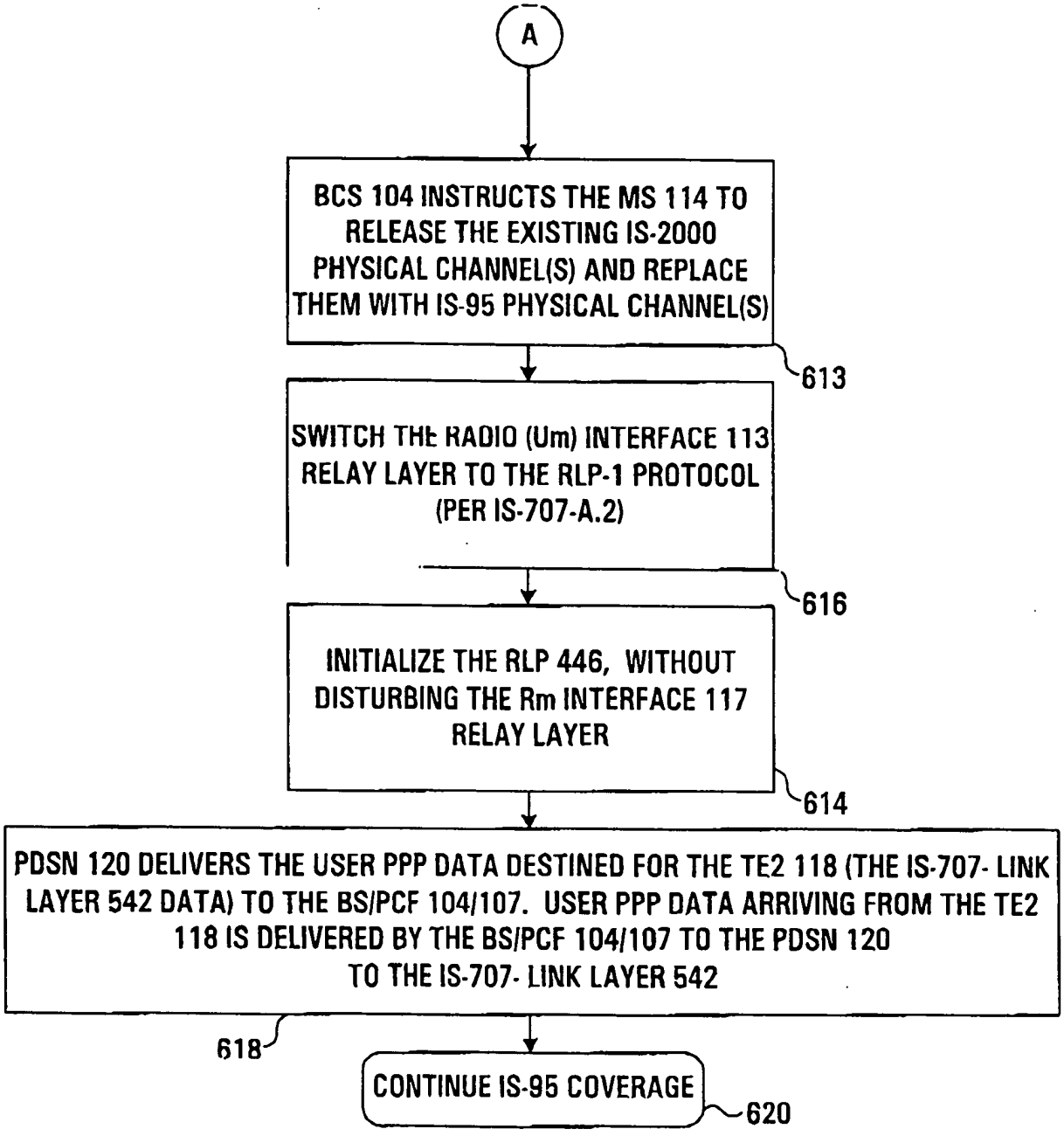


FIG. 6C
CONTINUED